Remarks/Arguments

Applicant has received and carefully reviewed the Office Action mailed February 19, 2004, setting a three month shortened statutory period for response ending May 19, 2004. Claims 1-28, 30 and 32 remain pending. Claim 22 has been amended to become independent. No new matter has been added. Reexamination and reconsideration are respectfully requested.

Claims 22-23 are objected to because of asserted informalities. Claim 22 has been rewritten in independent form as suggested by the Examiner.

Claims 1, 2, 24, and 32 are rejected under 35 U.S.C. § 102(e) as being anticipated by Jyumonji (US 5,987,591). Applicant respectfully traverses the rejection. Jyumonji is asserted as teaching a plurality of sensors each providing a location of an object with an associated sensor uncertainty distribution. Column 3, lines 60-65 are recited as containing this teaching. Applicant has carefully reviewed the reference and has not found such a teaching in Jyumonji. The part of the reference relied on by the Examiner is directed to a robot system in which multiple sensors detect an object located at an uncertain position in relation to the robot. Jyumonji does not teach or contemplate a system in which the sensors provide an associated sensor uncertainty distribution, as is recited in claim 1.

It appears that the only uncertainty discussed in Jyumonji is that of the position of the object with reference to the original start position of the robot. Jyumonji teaches the operation of the system as having the robot move into an approach-starting position, then stop, use the sensor to again detect the location of the object in relation to the robot, determine any deviation between the first detected position and the second detected position and move the robot accordingly. This process of moving, stopping and re-sensing the location of the object is repeated until the robot is in position to touch and manipulate the object. See column 7, lines 6-26. Jyumonji thus suggests detecting the location of an object using various sensors one at a time at various time points wherein the detection of the object is in relation to the robot after the robot has moved. The uncertainty in the process of Jyumonji is in the position of the object *with respect to the robot*, not in the location of the object itself. No sensor uncertainty distribution is

measured or provided. Rather, it appears Jyumonji teaches to detect an actual location of the object as best they can, and then adjust the position of the robot as the robot moves closer to the object. As can readily be seen, Jyumonji does not teach or suggest many of the limitations of claims 1, 2, 24 and 32.

With respect to claims 2, Applicant has found no teaching or suggestion in Jyumonji of a sensor uncertainty distribution dependent on one or more performance characteristics of the sensor. Jyumonji does not appear to discuss performance characteristics of the sensors. Column 3, lines 64-65, which the Examiner points to for support, only mentions that a sensor measures a step distribution after the robot approaches the workpiece. This only appears to provide an indication of what one of the sensors measures, but does not indicate any contemplation of Jyumonji to use performance characteristics of the sensors in the system.

Regarding claim 24, Applicant has found no teaching or suggestion in Jyumonji for the claimed method. Jyumonji teaches a method in which a robot gradually approaches an object, and after each movement, a sensor provides data related to the position of the object with respect to the robot in order to guide the robot to the precise location of the object. Each sensor provides data that is acted on individually to move the robot in a stepwise fashion. The data from the sensors in Jyumonji's method is not combined to provide a probability distribution for the most likely position of the object, as is recited in the claim.

Jyumonji also fails to teach a method in which the data from two or more local systems is combined to generate a value indicative of the most likely global position of an object, as is recited in claim 32. The portions of the Jyumonji reference recited for support merely suggest the stepwise movement of the robot as discussed above, in which the position of the object in relation to the robot's current position is determined.

In all embodiments of Jyumonji's method, it appears that each sensor individually, and one at a time, provides data indicating the relative position of the object in relation to the robot's position. The robot then moves in accordance with the position information, stops and waits for the next sensor to provide position information and again moves accordingly. The data from the sensors is not described as including a probability

distribution, and the data from the individual sensors is not described as being combined for generate a value indicative of the most likely position of an object. As can be seen, Jyumonji fails to teach each and every element of the claims. Withdrawal of the rejections is respectfully requested.

In view of the foregoing, it is believed that all pending claims 1-28, 30 and 32 are in condition for allowance. Issuance of a notice of allowance in due course is respectfully requested. If a telephone conference would be of assistance, please contact the undersigned attorney at 612-677-9050.

Respectfully submitted,

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By his attorney,

Dated: May 19, 2004

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